led to idiocy. Death at twenty-six years. Makroscopically the brain showed nothing abnormal. The cortex from different portions was examined microscopically. The abnormalities here found were: increase of neuroglia substance; distention of the perivascular and pericellular lymph spaces, atrophy of a number of ganglion cells, also pigmentary degeneration and vacuolization of many of them, and especially and particularly irregularity in the position of the pyramidal cells both with reference to the other layers and with reference to one another; finally hypertrophy of the vessels. The hypertrophy of the connective tissue and the atrophy of a number of ganglion cells were certainly pathological changes. The pigmentary degeneration in the case was also pathological for normally there is no such deposition of pigment in a person so young. The vacuolization was present, but whether pathological or not, the author leaves undecided. The displacement of the pyramidal cells certainly existed during life. Köster then balances the evidence in this case for and against the existence of enlarged pericellular spaces during life and concludes from the fact that there is an abnormal tendency for the pericellular spaces in many cases to fuse with one another, thus bringing two cells within one space, that the appearance is pathological and not an artefact. Of all these peculiarities there is only one, namely, the displacement of the pyramidal cells, which is not found in other forms of mental disease. This displacement consisted in a deviation of the cells, without uniformity, by which the long axes, instead of being vertical to the cortical surface and nearly parallel to one another, came to lie in any position with reference to this surface. Such an arrangement has been observed in other cases by Betz and Bernhardini, and the author points out that this variation should be particularly looked for in similar cases in order to determine the constancy of its occurrence. The paper has two figures showing ganglion cells, lymph spaces and vessels. ("*Axencylinderfortsatz*" is the word used to designate the conical prolongation of the pyramidal cells. REV.)

Beschreibung dreier Mikrocephalen-Gehirne nebst Vorstudien zur Anatomie der Mikrocephalie. Abtheilung I. Dr. F. MARCHAND. Nova Acta d. Kaiserl. Leop.-Carol. Deutschen Akademie der Naturforscher. Bd. LIII, No. 3. Rev. in Neurolog. Centralbl., No. 12, 1889, by P. Kronthal.

A careful study of these three cases showed the following abnormalities.

In the first: Forebrain small; great simplification and flattening of the convolutions, especially in parietal lobes. Central fissure running at right angles to the great longitudinal fissure with apparent union of the central fissure on the left side with the fissure of Sylvius. Marked development of the "Affenspalte" *(sulcus occipitalis transversus)* with well developed *operculum occipitale;* rudimentary development of the first and second occipital convolutions, which present well formed bridging convolutions as in the lower monkeys. Union of the *fissura calcarina* with the *sulcus ammonis;* excessive development of the gray matter on the convexity of the forebrain, specially of the parietal lobe and anterior central convolution with concomitant diminution of the white matter. Anomalies in the medulla oblongata in the abnormal arrangement of the gray matter of the olivary bodies in the form of several secondary olives. Moderate distention of the ventricle.

2. This specimen showed the forebrain small; great simplicity of the convolutions; exposure of a portion of the island of Reil, with incomplete development of the operculum. Central fissure nearly at right angles to the great longitudinal. The long axis of the parietal lobe, small; union of the parieto-occipital fissure with the *sulcus occipitalis transversus*, forming a deep depression between the parietal and occipital

lobes. The superior portion of the first *gyrus occipitalis* sunken, with incomplete development of the *tuberculum occipitale.* Cuneus, small. Corpus callosum, dwarfed.

3. The main deviations from the normal here were: Forebrain very small; great simplification of the convolutions. Exposure of a portion of the island of Reil. Union of the right central fissure with fissure of Sylvius; complete separation of the anterior central convolution on the right side from the horizontal frontal convolutions by an abnormally developed praecentral sulcus. Occipital convolutions small and abnormally formed. Presence of an *operculum occipitale.* Abnormal formation of the parieto-occipital fissure, especially on the right side. Shortening of the corpus callosum caudad. Five good plates accompany the text.

Variations of the spinal nerves in the caudal region of the domestic Pigeon. JAMES I. PECK. Jour. of Morphology, Vol. III, No. 1. June, 1889. 1 Plate.

The author first determined that the variable number of caudal vertebræ was not altogether explained by union of one or more with the coccyx, for if this had been the case an inverse relation was to be expected between the length of the coccyx and the number of caudal vertebræ. It was, however, found that the coccyx was longer in those specimens having many than in those having few free caudal vertebræ, and although the relation of the most caudal one of the latter to the coccyx varied, being more or less anchylosed with it, yet the variations in this part of the skeleton are thus shown to be more than relative. Specimens were examined by direct dissection and by sections—dovecote and fantail pigeons being employed. In various specimens from 5 to 8 free caudal vertebræ were found. This gave from 6 to 9 spaces for the emergence of nerves. In general the number of nerves was equal to the number of spaces minus 2, but it was sometimes equal to the number of spaces minus one. In one case, also, the most caudal nerve was present apparently on one side only. Caudad, at the point where the nerves arise, the cord is continued as a filum terminale, the arrangement of the nerves preventing anything like a cauda equina. The conclusion is that the nervous system in this region is plastic, and varies in association with the number of caudal vertebræ.

Anatomischer Befund bei einseitigem Fehlen des Kniephänomens. A. PICK. Archiv f. Psychiatrie und Nervenkrankheiten. Bd. XX. H. 3, 1889.

The spinal cord examined in this case was from a man of 60 years dying of pleuro-pneumonia while under treatment for tabes and dementia paralytica. In the fresh cord there was makroscopically nothing abnormal. When hardened in bichromate of potash the posterior columns were plainly seen to be degenerated through the entire length of the cord. The maximum disturbance was about the juncture of the dorsal with the lumbar regions. Here, as in the other regions, the left side was more involved than the right, and specially the root zone of the left side was more degenerated than that of the right, though there was some degeneration on the right side also. The knee jerk on the left side was absent in the patient, and on the right could be obtained with re-enforcement only. Westphal had already associated the loss of the knee-jerk with disease of the root zone (*Wurzeleintrittzone*) at the level of union between dorsal and lumbar regions; and this case is presented as confirmatory of his results. It will be observed that the localization is of a lesion in a tract of fibers and not of a cell group.

Histologische Untersuchungen am Rückenmark der Tritonen. K. R. BURCKHARDT. Archiv f. mikros. Anatomie. Bd. 34. H. 1, 1889.